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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPEAL BRIEF FOR THE APPELLANT

Ex parte Harri HOLMA, et al.

A METHOD FOR DATA TRANSMISSION IN A CELLULAR TELECOMMUNICATION SYSTEM

Serial No. 09/717,535
Appeal No.: Not yet assigned
Group Art Unit: 2616

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
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In re the Appellant:

Harri HOLMA, et al. Appeal No.:

Serial Number: 09/717,535 Group Art Unit: 2616

Filed: November 21, 2000 Examiner: Ferris, Derrick W

For: A METHOD FOR DATA TRANSMISSION IN A CELLULAR TELECOMUNICATION SYSTEM

BRIEF ON APPEAL

April 6, 2007

I. INTRODUCTION

This is an appeal from the final rejection set forth in an Official Action dated July 10, 2006, finally rejecting claims 19-30, all of the claims pending in this application, as being unpatentable over U.S. Patent No. 6,393,007 to Haartsen et al. ("*Haartsen*") in view of U.S. Patent No. 5,455,962 to Kotzin et al. ("*Kotzin*") and in further view of "Channel Assignment Schemes for Cellular Mobile Telecommunication Systems: A comprehensive Survey" to Katzela et al. ("*Katzela*"). A Notice of Appeal was timely filed on January 9, 2007 with petition for Extension of Time. This Appeal Brief is being timely filed with an extension of time for one month.

II. REAL PARTY IN INTEREST

The real party in interest in this application is Nokia Networks Oy of Espoo, Finland, by virtue of an assignment by the inventors. The assignment was recorded at Reel 011727, Frame 0337, on April 16, 2001.

III. STATEMENT OF RELATED APPEALS AND INTERFERENCES - 37 CFR 41.37(c)(1)(ii)

There are no known related applications, patents, judicial proceedings, appeals, and/or interferences that are related to, will directly effect, be directly effected by, or have a bearing on the Board's decision in this appeal.

IV. STATUS OF CLAIMS - 37 CFR 41.37(c)(1)(iii)

Each of claims 19-30 were rejected and their respective rejections are the subject of this appeal. If some claims were rejected more than once, every rejection of every such claim is appealed. See Section VII ("Grounds of Rejection"), below, for a detailed listing of the various grounds of rejection.

V. STATUS OF AMENDMENTS

All of claims 19-30 stand as they were previously presented prior to the Office Action. No amendments have been submitted or entered since that time. Thus, claims 19-30 are pending and the respective rejections of claims 19-30 are appealed. The most recent amendment to the claims was made in a response filed June 24, 2005.

VI. SUMMARY OF CLAIMED SUBJECT MATTER - 37 CFR 41.37(c)(1)(v)

The following is a concise explanation of the subject matter defined in each of the independent claims and the separately argued dependent claims that include a means-plus-function feature that is not already recited in an independent claim, as required by 37 CFR 41.37(c)(1)(v).

Claim 19, upon which claims 21-25 depend, is directed to a method for data transmission in a cellular telecommunication system, in which system data are transmitted in units of bursts. *See*, *for example*, page 1, lines 7-8, and page 3, lines 3-6. Each burst occupying a time slot (TS[j]) of one of consecutive frames (F[i]). *See*, *for example*, page 10, lines 28-30. In the method, each respective frame comprises a predetermined number n of time slots. *See, for example,* page 3, lines 8-15. Within a each time slot (TS[j]) of each frame (F[i]), data can be transmitted between a first transceiver device and a respective one of a plurality of second transceiver devices (*See, for example*, page 3, lines 17-22, page 2, lines 22-23, and page 2, lines 25-26) either in a first transmission direction from said first transceiver device to said respective second transceiver device (*See, for example*, FIG. 5 and page 2, lines 22-28) or in a second transmission direction from said respective second transceiver device to said first transceiver device (*See, for example*, page 2, lines 28-29, and page 10, line 32, to page 11, line 1) opposite to a transmission direction in another time slot of the same frame (F[i]) in which data

is transmitted between said first transceiver device and another one of said second transceiver devices (*See, for example*, FIGS. 4 and 5, and page 10, line 28, to page 11, line 1). The method includes transmission in said first direction occurs in predetermined and fixed time slots (TS[j]) in each of consecutive frames (F[i], F[i+1]). *See, for example*, FIG. 5, page 12, lines 6-8, and page 12, lines 15-17. The method further includes transmission in said second direction occurs in different time slots (Ts[k], Ts[l]) in each of consecutive frames (F[i], F[i+1]). *See, for example*, FIG. 5, page 10, line 34, to page 11, line 1, page 11, lines 4-9, and page 12, lines 8-9 and 17-20. In said second direction (UL), during a first frame (F[i]) of consecutive frames (*See, for example,* FIGS. 5 and 6) respective second transceiver devices perform transmission to said first transceiver device during a kth time slot (TS[k]) assigned thereto for transmission. *See, for example*, FIG. 5, page 11, lines 22-27, page 12, lines 9-12 and 17-20, FIG. 6, and page 13, lines 4-7. During a subsequent second frame (F[i+1]) of said consecutive frames (*See, for example,* FIGS. 5 and 6), respective second transceiver devices perform transmission to said first transceiver device during a different l^{th} time slot (TS[l]) assigned thereto for transmission, with $0 \leq k, l \leq n-1$ and $k \neq l$. *See, for example,* FIG. 5, page 11, lines 22-27, page 12, lines 9-13 and lines 17-20, FIG. 6, and page 13, lines 4-7.

Claim 20, upon which claims 26-30 depend, is directed to a method for data transmission in a cellular telecommunication system, in which system data are

transmitted in units of bursts. *See*, *for example*, page 1, lines 7-8, and page 3, lines 3-6. Each burst occupying a time slot (TS[j]) of one of consecutive frames (F[i]). *See*, *for example*, page 10, lines 28-30. In the method, each respective frame comprises a predetermined number n of time slots. *See, for example,* page 3, lines 8-15. Within a each time slot (TS[j]) of each frame (F[i]), data can be transmitted between a first transceiver device and a respective one of a plurality of second transceiver devices (*See, for example*, page 3, lines 17-22, page 2, lines 22-23, and page 2, lines 25-26) either in a first transmission direction from said first transceiver device to said respective second transceiver device (*See, for example*, FIG. 5 and page 2, lines 22-28) or in a second transmission direction from said respective second transceiver device to said first transceiver device (*See, for example*, page 2, lines 28-29, and page 10, line 32, to page 11, line 1) opposite to a transmission direction in another time slot of the same frame (F[i]) in which data is transmitted between said first transceiver device and another one of said second transceiver devices (*See, for example*, FIGS. 4 and 5, and page 10, line 28, to page 11, line 1). The method includes transmission in said first direction occurs in different time slots (Ts[k], Ts[l]) in each of consecutive frames (F[i], F[i+1]). *See, for example*, FIG. 4, page 10, line 34, to page 11, line 1, and page 11, lines 4-9, lines 15-17, and lines 31-34. The method further includes transmission in said second direction occurs in predetermined and fixed time slots (TS[j]) in each of consecutive frames (F[i], F[i+1]). *See, for example*, FIG. 4, page 11, lines 11-13, and lines

29-31. In said first direction during a first frame (F[i]) of consecutive frames (*See, for example,* FIGS. 4 and 6) respective first transceiver devices perform transmission to said second transceiver device during a kth time slot (TS[k]) assigned thereto for transmission. *See, for example*, FIG. 4, page 11, lines 31-34 and lines 22-27, FIG. 6, and page 13, lines 7-11. During a subsequent second frame (F[i+1]) of said consecutive frames (*See, for example,* FIGS. 4 and 6), respective first transceiver devices perform transmission to said second transceiver device during a different l^{th} time slot (TS[l]) assigned thereto for transmission, with $0 \leq k, l \leq n-1$ and $k \neq l$. *See, for example,* FIG. 4, page 11, lines 22-27 and lines 31-34, page 12, lines 9-13, FIG. 6, and page 13, lines 4-7.

VII. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL - 37 CFR 41.37(c)(1)(vi)

The grounds of rejection to be reviewed on appeal are as follows:

- The issues on appeal are whether claims 19-30 are unpatentable under 35 U.S.C. § 103 over U.S. patent No. 6,393,007 to Haartsen et al. ("*Haartsen*") in view of U.S. Patent No. 5,455,962 to Kotzin et al. ("*Kotzin*") and further in view of "Channel Assignment Schemes for Cellular Mobile Telecommunication Systems: A Comprehensive Survey" to Katzela et al. ("*Katzela*"). As will be discussed below, this Appeal Brief will show that these rejections should be withdrawn, and this application passed to issue.

VIII. APPELLANT'S ARGUMENTS

Appellants respectfully submit that each of the pending claims, 19-25, recites subject matter that is neither disclosed nor suggested by the cited art. Each of the claims is being argued separately under a separate sub-heading as suggested by 37 CFR 41.37(c)(1)(vii), and thus each of the claims stands or falls alone.

Rejection of claims 19-30 under 35 U.S.C. § 103

Claims 19-30 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. patent No. 6,393,007 to Haartsen et al. ("*Haartsen*") in view of U.S. Patent No. 5,455,962 to Kotzin et al. ("*Kotzin*") and further in view of "Channel Assignment Schemes for Cellular Mobile Telecommunication Systems: A Comprehensive Survey" to Katzela et al. ("*Katzela*"). The Office Action took the position that *Haartsen*, *Kotzin*, and *Katzela* disclose all the aspects of claims 19-30. Appellants respectfully traverse this rejection and request that it be reversed.

i. Claim 19

Independent claim 19, upon which claims 21-25 are dependent, recites a method for data transmission in a cellular telecommunication system, in which system data are transmitted in units of bursts, each burst occupying a time slot (TS[j]) of one of consecutive frames (F[i]), each respective frame comprising a

predetermined number n of time slots, within a each time slot (TS[j]) of each frame (F[i]). Data can be transmitted between a first transceiver device and a respective one of a plurality of second transceiver devices either in a first transmission direction from said first transceiver device to said respective second transceiver device or in a second transmission direction from said respective second transceiver device to said first transceiver device opposite to a transmission direction in another time slot of the same frame (F[i]) in which data is transmitted between said first transceiver device and another one of said second transceiver devices. Transmission in said first direction occurs in predetermined and fixed time slots (TS[j]) in each of consecutive frames (F[i], F[i+1]), and transmission in said second direction occurs in different time slots (Ts[k], Ts[l]) in each of consecutive frames (F[i], F[i+1]). In said second direction (UL), during a first frame (F[i]) of consecutive frames respective second transceiver devices perform transmission to said first transceiver device during a kth time slot (TS[k]) assigned thereto for transmission, and during a subsequent second frame (F[i+1]) of said consecutive frames, respective second transceiver devices perform transmission to said first transceiver device during a different lth time slot (TS[l]) assigned thereto for transmission, with $0 \leq k, l \leq n-1$ and $k \neq l$.

Haartsen generally describes a method and equipment for radio communication, applying time hopping slots of a Time Division Multiple Access (TDMA) radio communication frame, suitable for coexistence of various types of

communications in the same frame. *See* column 3, lines 21-26. *Haartsen* provides that a communication channel includes at least one time slot of a plurality of sequential time slots forming the TDMA frame, and where a time slot of a frame hops in position between sequential frames. *See* FIG. 3 of *Haartsen*. In *Haartsen*, the hopping of the time slot depends on **the type of information** being transmitted **in said time slot**, where a same time slot allocated to a voice communication channel hops in position between sequential frames, and wherein the position of a time slot allocated to a data communication channel is fixed between sequential frames. *See* FIG. 4 and column 8, lines 60-67.

Haartsen provides in column 8, lines 19-30, the following:

> In radio communication systems wherein time slots can be adaptively selected for transmission or reception, for example, when a large amount of data **has to be transmitted from a radio access unit to a remote communication unit** in the form of a personal computer, asymmetric data links are established. **Such links occupy a plurality of time slots in a frame in the direction to the remote communication unit (downlink) and, for example, a single time slot in the direction to the radio access unit (uplink). By applying time hopping, there is a severe risk that the return channel becomes available before all the data in a frame have been transferred**, such that acknowledgement within the same frame is not possible. The absence of an acknowledgment will automatically lead to a retransmission of the data, also if no errors occurred, which will reduce the data throughput of the system considerably, and on average only 50% of the maximum throughput capacity is achieved. (Emphasis added)

Clearly, *Haartsen* teaches away from the configuration being recited in independent claim 19. Essentially *Haartsen* is indicating that if time hopping is

applied in a second direction, through the return channel, there is a severe risk that the return channel becomes available before all the data in a frame have been transferred. Accordingly, to resolve such concern, *Haartsen* provides that the time slots d allocated to data communication channels occupy a fixed position in the frame, whereas the time slots A, B and C allocated to voice communication hop in position between subsequent frames. As shown in FIG. 4, voice communication channel A hops from time slot 1 in hop (k) to time slot 6 in hop (k+1), with respect to the first frame half, i.e. a hop length of 5 time shot positions.

Haartsen does not contemplate or appreciate the particular configuration of the frames in the first direction and the second direction as recited in independent claims 19 and 20 to resolve the errors described therein.

In Response, in the "Response to Arguments," the Examiner contended that "In addition, with respect to applicant's remarks concerning the *Haartsen* reference, the examiner notes that not explicitly teaching a limitation does not mean that the reference teaches away from a reference." However, the Examiner does not offer any explanation for such contention. The contention does not explain why, despite the description provided in *Haartsen*, a person of ordinary skill in the art would still believe that *Haartsen* does not teach away from the recitation of the pending claims. Accordingly, Appellants respectfully request that *Haartsen* is not a proper reference to be considered against the claims of the present application.

Haartsen is silent as to teaching or suggesting, at least, "transmission in said first direction occurs in predetermined and fixed time slots (TS[j]) in each of consecutive frames (F[i], F[i+1]), and transmission in said second direction occurs in different time slots (Ts[k], Ts[l]) in each of consecutive frames (F[i], F[i+1]), wherein in said second direction (UL), during a first frame (F[i]) of consecutive frames respective second transceiver devices perform transmission to said first transceiver device during a kth time slot (TS[k]) assigned thereto for transmission, and during a subsequent second frame (F[i+1]) of said consecutive frames, respective second transceiver devices perform transmission to said first transceiver device during a different lth time slot (TS[l]) assigned thereto for transmission, with $0 \leq k, l \leq n-1$ and $k \neq l$," as recited in independent claim 19. To cure the deficiencies of *Haartsen*, *Kotzin* and *Katzela* are relied upon as teaching the recitations of the transmission as recited in independent claim 19.

Kotzin generally provides that the solution to a problem of applying frequency hopping within GSM while still allowing mobile subscribers to detect nearby base sites lies, conceptually, in a half-hopping format wherein the uplink is maintained on a frequency hopping format while the downlink does not hop. *See* column 3, lines 47-57. However, *Kotzin* does not teach or suggest the particular configuration of the transmission of the data in the first and second direction as recited in independent claims 19 and 20. Rather, *Kotzin* simply frequency hopping uplink (indexed uplink) achieves the noise immunity of frequency hopping

communication systems. The non-hopping downlink (non-indexed downlink) allows a mobile subscriber to detect, and measure, the signals of nearby base stations. Clearly, *Kotzin* does not teach or suggest that the hopping comprises "in said second direction (UL), during a first frame (F[i]) of consecutive frames respective second transceiver devices perform transmission to said first transceiver device during a kth time slot (TS[k]) assigned thereto for transmission, and during a subsequent second frame (F[i+1]) of said consecutive frames, respective second transceiver devices perform transmission to said first transceiver device during a different lth time slot (TS[l]) assigned thereto for transmission, with $0 \leq k, l \leq n-1$ and $k \neq l$," as recited in independent claim 19.

Furthermore, *Kotzin* limits its description to providing that the method of frequency hopping on the uplink is similar to the method provided by GSM **for conventional frequency hopping of non-primary channels except that, according to the invention, indexing is limited to the uplink and primary and nonprimary channels may be indexed**. (Emphasis added). However, *Kotzin* does not teach or suggest the performing of the transmission of the second direction occurring in different time slots in each of consecutive frames as recited in independent claim 19. *Kotzin* is limited to providing that the large geographic area (50) may have assigned frequencies (f_1, f_2, . . . f_n). Frequencies f_1, f_2, and f_3 may be assigned to BTS 61 with frequency f_1 designated as primary channel for BTS 61. *See* column 4, lines 45-52. Frequencies f_4, f_5, and f_6 may be assigned to BTS 62

with frequency f_4 designated as primary channels for BTSs 62. Frequencies f_7, f_8, and f_9 may be assigned to BTS 63 with frequency f_7 designated as primary channel for BTS 63. Therefore, contrary to the contentions made in the Office Action, *Kotzin* is devoid of any teaching or suggestion of the particular transmissions of data being performed as recited in independent claim 19 and, accordingly, does not cure the deficiencies of *Haartsen*. Similarly to *Haartsen*, *Kotzin* is devoid of any teaching or suggestion providing, at least, "in said second direction (UL), during a first frame (F[i]) of consecutive frames respective second transceiver devices perform transmission to said first transceiver device during a kth time slot (TS[k]) assigned thereto for transmission, and during a subsequent second frame (F[i+1]) of said consecutive frames, respective second transceiver devices perform transmission to said first transceiver device during a different lth time slot (TS[l]) assigned thereto for transmission, with $0 \leq k, l \leq n-1$ and $k \neq l$," as recited in independent claim 19.

Katzela, in turn, does not cure the deficiencies of *Haartsen* and *Kotzin*. Rather, *Katzela* generally provides different channel allocation schemes as described on page 10, right column. In particular, on page 10, *Katzela* describes several schemes, namely, frequency division, time division, or code divisions. On page 11, right column, *Katzela* describes a fixed channel allocation (FCA) and on page 15, *Katzela* describes a dynamic channel allocation (DCA). Also, on page 21 of *Katzela*, a hybrid channel allocation (HCA) is described in which both, a fixed

channel allocation and a dynamic channel allocation are used. On page 22, right column, *Katzela* describes a fixed and dynamic channel allocations are described. However, *Katzela* describes a fixed channel allocation or the dynamic channel allocation is applied depending on the network condition (for instance, see Table 12 and page 21). Similarly to *Haartsen* and *Kotzin*, *Katzela* is devoid of any teaching or suggestion providing, at least, "in said second direction (UL), during a first frame (F[i]) of consecutive frames respective second transceiver devices perform transmission to said first transceiver device during a kth time slot (TS[k]) assigned thereto for transmission, and during a subsequent second frame (F[i+1]) of said consecutive frames, respective second transceiver devices perform transmission to said first transceiver device during a different lth time slot (TS[l]) assigned thereto for transmission, with $0 \leq k, l \leq n-1$ and $k \neq l$," as recited in independent claim 19.

Furthermore, Appellants submit that because *Haartsen* is not a proper reference to be considered against the claims of the present application and because, a person of ordinary skill in the art would not have been motivated to combine the descriptions of *Haartsen*, *Kotzin*, and *Katzela*. Even if *Haartsen* is considered along with *Kotzin* and *Katzela*, a combination of *Haartsen*, *Kotzin*, and *Katzela* would not teach or suggest all the recitations of independent claim 19.

As commonly understood, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art..."[the Examiner] can

satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." *In re Fritch*, 23 USPQ 2d 1780, 1783 (Fed. Cir. 1992). In addition, the mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *Id.* at 1783-84.

In the "Response to Arguments," the motivation to combine *Kotzin* and *Haartsen* the following is provided "one skilled in the art would conclude that either time hopping or frequency hopping in one direction would reduce interference where *Kotzin* explicitly teaches avoiding interference by frequency hopping in one direction and applicant's **specification** teaches avoiding interference by time hopping in both directions, such that one skilled in the art could apply either frequency hopping or time hopping in one direction for the motivation of avoiding interference." (Emphasis added). However, the Examiner has not met the prima facie case of obviousness by showing where in *Haartsen* and/or *Kotzin* is there a teaching or suggestion for the desirability of the modification as submitted by the Examiner. Not only does the Office Action erroneously relies on the specification of the present application to find the so called "motivation," but the Office Action fails to provide any evidence supporting a teaching or suggestion in either reference that would motivate a person of ordinary skill in the art to combine both

references. With regards to *Katzela*, the Office Action contended that "*Katzela* affirms the notion that it is well known in the art to have both fixed and dynamic channel allocation." Nevertheless, such contention does not show any motivation explaining why a person of ordinary skill in the art would be motivated to combine the descriptions of *Haartsen* and *Kotzin* with *Katzela.*

Clearly, the Office Action disregarded the particular recitations of independent claim 19 by not considering the specific features being recited, but instead, by generally and vaguely indicating that the combination of *Haartsen*, *Kotzin*, and *Katzela* would provide an application of either frequency hopping or time hopping in one direction and having both fixed and dynamic channel allocation. The Office Action does not provide any showing of how a combination of *Haartsen*, *Kotzin*, and *Katzela* would provide for the particular recitations of the transmission in a first direction and a second direction as recited in independent claim 19.

In addition, the Office Action, at section 1, "Response to Arguments," stated that the Examiner does not withdraw the obviouness rejection because the Applicants argue the references individually, not as a combination. According to the Office Action, "one cannot show nonobviousness by attacking the references individually where the rejections are based on combinations of references," and cited *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981) and *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicants respectfully

submit that the Office Action's reliance on *Keller* and *Merck* is misplaced. Applicants' response follows the pattern laid out by the Federal Circuit: identify the deficiencies of the primary reference, and determine whether the secondary reference remedies those deficiencies. *In re Rijckaert*, 28 USPQ2d 1955, 1956-7 (Fed. Cir. 1993). Additionally, as the Federal Circuit has explained, Applicants are not required to show nonobviousness until a prima facia case for obviousness has been established. *Rijckaert* at 1957. Additionally, Applicants have not addressed a reference in isolation, like the applicant in *Merck*, nor have Applicants provided an affidavit regarding a solitary reference like the applicant in *Keller*. Accordingly, Applicants' argument complies with the law as set forth by the Federal Circuit. Specifically, Applicants have shown that neither *Haartsen*, *Kotzin*, nor *Katzela* discloses "transmission in said first direction occurs in predetermined and fixed time slots (TS[j]) in each of consecutive frames (F[i], F[i+1]), and transmission in said second direction occurs in different time slots (Ts[k], Ts[l]) in each of consecutive frames (F[i], F[i+1])" and, therefore, Applicants reasonably conclude that just as two plus two is not more than four, the combination cannot teach more than the sum of the teachings of the references.

Accordingly, in view of the foregoing, it is respectfully requested that the rejections to the claims be withdrawn and the independent claim 19 be allowed.

ii. Claim 20

Claim 20, from which claims 26-30 depend, is directed to a method for data transmission in a cellular telecommunication system, in which system data are transmitted in units of bursts, each burst occupying a time slot (TS[j]) of one of consecutive frames (F[i]), each respective frame comprising a predetermined number n of time slots. Within a each time slot (TS[j]) of each frame (F[i]), data can be transmitted between a first transceiver device and a respective one of a plurality of second transceiver devices either in a first transmission direction from said first transceiver device to said respective second transceiver device or in a second transmission direction from said respective second transceiver device to said first transceiver device opposite to a transmission direction in another time slot of the same frame (F[i]) in which data is transmitted between said first transceiver device and another one of said second transceiver devices. Transmission in said first direction occurs in different time slots (Ts[k], Ts[l]) in each of consecutive frames (F[i], F[i+1]), and transmission in said second direction occurs in predetermined and fixed time slots (TS[j]) in each of consecutive frames (F[i], F[i+1]). In said first direction during a first frame (F[i]) of consecutive frames respective first transceiver devices perform transmission to said second transceiver device during a kth time slot (TS[k]) assigned thereto for transmission, and during a subsequent second frame (F[i+1]) of said consecutive frames, respective first transceiver devices perform transmission to said second transceiver device during a different lth time

slot (TS[l]) assigned thereto for transmission, with $0 \leq k, l \leq n-1$ and $k \neq l$.

Applicant respectfully submits that claim 20 recites features that are neither disclosed nor suggested in *Haartsen*, *Kotzin*, and *Katzela*.

Applicants respectfully submit that a combination *Haartsen*, *Kotzin*, and *Katzela* fail to disclose or suggest at least the feature of edged-coupled transmission lines as recited in claim 20 for the same reasons stated above in Section VIII(i) for claim 19.

Based at least on the above, Applicant respectfully submits that *Haartsen*, *Kotzin*, and *Katzela* fail to disclose or suggest all of the features of independent claim 20 because *Haartsen*, *Kotzin*, and *Katzela*, individually or combined, fail to disclose or suggest, at least, the "transmission in said first direction occurs in different time slots (Ts[k], Ts[l]) in each of consecutive frames (F[i], F[i+1]), and transmission in said second direction occurs in predetermined and fixed time slots (TS[j]) in each of consecutive frames (F[i], F[i+1]), wherein in said first direction during a first frame (F[i]) of consecutive frames respective first transceiver devices perform transmission to said second transceiver device during a kth time slot (TS[k]) assigned thereto for transmission, and during a subsequent second frame (F[i+1]) of said consecutive frames, respective first transceiver devices perform transmission to said second transceiver device during a different lth time slot (TS[l]) assigned thereto for transmission, with $0 \leq k, l \leq n-1$ and $k \neq l$," as recited in independent claim 20.

iii. Claim 21

Claim 21 depends from and further limits claim 19. Accordingly, the arguments from Section VIII(i), above, apply with even greater force to claim 21.

Furthermore, claim 21 recites, "transmission between said first transceiver device and respective second transceiver devices occurs in said first direction , in a first number of different time slots, and in said second direction, in a second number of different time slots, said first and said second number being chosen such that the sum of said first and second number is less or equal to the number n of time slots within a frame." Because *Haartsen*, *Kotzin*, and *Katzela* do not disclose the particular features of the transmission recited in independent claim 19, *Haartsen*, *Kotzin*, and *Katzela*, individually or combined, also do not disclose the features of the transmission further defined in claim 21. Accordingly, it is respectfully requested that the rejection of claim 21 be reversed.

iv. Claim 22

Claim 22 depends from and further limits claim 19. Accordingly, the arguments from Section VIII(i), above, apply with even greater force to claim 22.

Furthermore, claim 22 recites, "wherein frames are transmitted using a frequency of available frequencies, and the used frequency is selectively changed." Because *Haartsen*, *Kotzin*, and *Katzela* do not disclose the particular

features of the transmission recited in independent claim 19, *Haartsen*, *Kotzin*, and *Katzela*, individually or combined, also do not disclose the features of the frequency used for transmission defined in claim 22. Accordingly, it is respectfully requested that the rejection of claim 22 be reversed.

v. Claim 23

Claim 23 depends from and further limits claim 19. Accordingly, the arguments from Section VIII(i), above, apply with even greater force to claim 23.

Furthermore, claim 23 recites, "the frames are defined according to TDMA standard." Because *Haartsen*, *Kotzin*, and *Katzela* do not disclose the particular features of the transmission recited in independent claim 19, *Haartsen*, *Kotzin*, and *Katzela*, individually or combined, also do not disclose the features further defined in claim 23. Accordingly, it is respectfully requested that the rejection of claim 23 be reversed.

vi. Claim 24

Claim 24 depends from and further limits claim 19. Accordingly, the arguments from Section VIII(i), above, apply with even greater force to claim 24.

Furthermore, claim 24 recites, "within each TDMA time slot code division can be applied between users." Because *Haartsen*, *Kotzin*, and *Katzela* do not disclose the particular features of the transmission recited in independent claim 19,

Haartsen, *Kotzin*, and *Katzela*, individually or combined, also do not disclose the features further defined in claim 24. Accordingly, it is respectfully requested that the rejection of claim 24 be reversed.

vii. Claim 25

Claim 25 incorporates the recitations of claim 19, the arguments from Section VIII(i), above, apply with even greater force to claim 25.

Furthermore, claim 25 recites, "A radio transceiver device adapted to operate according to the method as defined in claim 19 either as first or as second transceiver device." Because *Haartsen*, *Kotzin*, and *Katzela* do not disclose the particular features of the transmission recited in independent claim 19, *Haartsen*, *Kotzin*, and *Katzela*, individually or combined, also do not disclose the features further defined in claim 25. Accordingly, it is respectfully requested that the rejection of claim 25 be reversed.

viii. Claim 26

Claim 26 depends from and further limits claim 20. Accordingly, the arguments from Section VIII(ii), above, apply with even greater force to claim 26.

Furthermore, claim 26 recites, "transmission between said first transceiver device and respective second transceiver devices occurs in said first direction, in a first number of different time slots, and in said second direction, in a second

number of different time slots, said first and said second number being chosen such that the sum of said first and second number is less or equal to the number n of time slots with a frame." Because *Haartsen*, *Kotzin*, and *Katzela* do not disclose the particular features of the transmission recited in independent claim 20, *Haartsen*, *Kotzin*, and *Katzela*, individually or combined, also do not disclose the features further defined in claim 26. Accordingly, it is respectfully requested that the rejection of claim 26 be reversed.

ix. Claim 27

Claim 27 depends from and further limits claim 20. Accordingly, the arguments from Section VIII(ii), above, apply with even greater force to claim 27.

Furthermore, claim 27 recites, "frames are transmitted using a frequency of available frequencies, and the used frequency is selectively changed." Because *Haartsen*, *Kotzin*, and *Katzela*, individually or combined, do not disclose the particular features of the transmission recited in independent claim 20, *Haartsen*, *Kotzin*, and *Katzela* also do not disclose the features further defined in claim 27. Accordingly, it is respectfully requested that the rejection of claim 27 be reversed.

x. Claim 28

Claim 28 depends from and further limits claim 20. Accordingly, the arguments from Section VIII(ii), above, apply with even greater force to claim 28.

Furthermore, claim 28 recites, "the frames are defined according to TDMA standard." Because *Haartsen*, *Kotzin*, and *Katzela* do not disclose the particular features of the transmission recited in independent claim 20, *Haartsen*, *Kotzin*, and *Katzela*, individually or combined, also do not disclose the features further defined in claim 28. Accordingly, it is respectfully requested that the rejection of claim 28 be reversed.

xi. Claim 29

Claim 29 depends from and further limits claim 20. Accordingly, the arguments from Section VIII(ii), above, apply with even greater force to claim 29.

Furthermore, claim 29 recites, "within each TDMA time slot code division can be applied between users." Because *Haartsen*, *Kotzin*, and *Katzela* do not disclose the particular features of the transmission recited in independent claim 20, *Haartsen*, *Kotzin*, and *Katzela*, individually or combined, also do not disclose the features further defined in claim 29. Accordingly, it is respectfully requested that the rejection of claim 29 be reversed.

xii. Claim 30

Claim 30 incorporates the recitations of claim 20, the arguments from Section VIII(ii), above, apply with even greater force to claim 30.

Furthermore, claim 30 recites, "A radio transceiver device adapted to

operate according to the method as defined in claim 20 either as first or as second transceiver device." Because *Haartsen*, *Kotzin*, and *Katzela* do not disclose the particular features of the transmission recited in independent claim 20, *Haartsen*, *Kotzin*, and *Katzela*, individually or combined, also do not disclose the features further defined in claim 30. Accordingly, it is respectfully requested that the rejection of claim 30 be reversed.

IX. CONCLUSION

For all of the above noted reasons, it is respectfully submitted that numerous clear differences exist between the present invention as recited in claims 19-30 and the cited art relied upon by the Examiner. It is further contended that these differences are more than sufficient to establish both novelty and non-obviousness of the present invention.

This final rejection being in error, therefore, it is respectfully requested that this honorable Board of Patent Appeals and Interferences reverse the Examiner's decision in this case and indicate the allowability of application claims 19-30 over the art of record.

In the event that this paper is not being timely filed, Appellants respectfully petition for an appropriate extension of time.

Any fees for such an extension together with any additional fees which may be due with respect to this paper may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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Encls: Appendix 1 - Claims on Appeal
Appendix 2 - Evidence
Appendix 3 - Related Proceedings

APPENDIX 1

CLAIMS ON APPEAL

Claims 1-18. (Cancelled).

19. A method for data transmission in a cellular telecommunication system, in which system data are transmitted in units of bursts, each burst occupying a time slot (TS[j]) of one of consecutive frames (F[i]),

each respective frame comprising a predetermined number n of time slots,

within a each time slot (TS[j]) of each frame (F[i]), data can be transmitted between a first transceiver device and a respective one of a plurality of second transceiver devices either in a first transmission direction from said first transceiver device to said respective second transceiver device or in a second transmission direction from said respective second transceiver device to said first transceiver device opposite to a transmission direction in another time slot of the same frame (F[i]) in which data is transmitted between said first transceiver device and another one of said second transceiver devices, wherein

transmission in said first direction occurs in predetermined and fixed time slots (TS[j]) in each of consecutive frames (F[i], F[i+1]), and

transmission in said second direction occurs in different time slots (Ts[k], Ts[l]) in each of consecutive frames (F[i], F[i+1]),

wherein

in said second direction (UL), during a first frame (F[i]) of consecutive frames

respective second transceiver devices perform transmission to said first transceiver device during a k^{th} time slot (TS[k]) assigned thereto for transmission, and

during a subsequent second frame (F[i+1]) of said consecutive frames,

respective second transceiver devices perform transmission to said first transceiver device during a different l^{th} time slot (TS[l]) assigned thereto for transmission,

with $0 \leq k, l \leq n-1$ and $k \neq l$.

20. A method for data transmission in a cellular telecommunication system, in which system data are transmitted in units of bursts, each burst occupying a time slot (TS[j]) of one of consecutive frames (F[i]),

each respective frame comprising a predetermined number n of time slots, wherein

within a each time slot (TS[j]) of each frame (F[i]), data can be transmitted between a first transceiver device and a respective one of a plurality of second transceiver devices either in a first transmission direction from said first transceiver device to said respective second transceiver device or in a second transmission direction from said respective second transceiver device to said first transceiver

device opposite to a transmission direction in another time slot of the same frame (F[i]) in which data is transmitted between said first transceiver device and another one of said second transceiver devices, wherein

transmission in said first direction occurs in different time slots (Ts[k], Ts[l]) in each of consecutive frames (F[i], F[i+1]), and

transmission in said second direction occurs in predetermined and fixed time slots (TS[j]) in each of consecutive frames (F[i], F[i+1]), wherein

in said first direction during a first frame (F[i]) of consecutive frames

respective first transceiver devices perform transmission to said second transceiver device during a k^{th} time slot (TS[k]) assigned thereto for transmission, and

during a subsequent second frame (F[i+1]) of said consecutive frames,

respective first transceiver devices perform transmission to said second transceiver device during a different l^{th} time slot (TS[l]) assigned thereto for transmission,

with $0 \leq k, l \leq n-1$ and $k \neq l$.

21. A method for data transmission in a cellular telecommunication system according to claim 19, wherein

transmission between said first transceiver device and respective second transceiver devices occurs in said first direction, in a first number of different time

slots, and in said second direction, in a second number of different time slots, said first and said second number being chosen such that the sum of said first and second number is less or equal to the number n of time slots within a frame.

22. A method for data transmission in a cellular telecommunication system according to claim 19, wherein frames are transmitted using a frequency of available frequencies, and the used frequency is selectively changed.

23. A method for data transmission in a cellular telecommunication system according to claim 19, wherein the frames are defined according to TDMA standard.

24. A method for data transmission in a cellular telecommunication system according to claim 19, wherein within each TDMA time slot code division can be applied between users.

25. A radio transceiver device adapted to operate according to the method as defined in claim 19 either as first or as second transceiver device.

26. A method for data transmission in a cellular telecommunications system according to claim 20, wherein

transmission between said first transceiver device and respective second transceiver devices occurs in said first direction, in a first number of different time slots, and in said second direction, in a second number of different time slots, said first and said second number being chosen such that the sum of said first and second number is less or equal to the number n of time slots with a frame.

27. A method for data transmission in a cellular telecommunication system according to claim 20, wherein frames are transmitted using a frequency of available frequencies, and the used frequency is selectively changed.

28. A method for data transmission in a cellular telecommunication system according to claim 20, wherein the frames are defined according to TDMA standard.

29. A method for data transmission in a cellular telecommunication system according to claim 20, wherein within each TDMA time slot code division can be applied between users.

30. A radio transceiver device adapted to operate according to the method as defined in claim 20 either as first or as second transceiver device.

APPENDIX 2

EVIDENCE APPENDIX

No evidence under section 37 C.F.R. 1.130, 1.131, or 1.132 has been entered or will be relied upon by Appellants in this appeal.

APPENDIX 3

RELATED PROCEEDINGS APPENDIX

No decisions of the Board or of any court have been identified under 37 C.F.R. §41.37(c)(1)(ii).